the Royal Society's Apartments is satisfactorily proved, and that the same cause has been in operation at both seasons; this cause he considers to be the vicinity of the river Thames to the place of observation. With the view of showing the extent to which this cause operates, a table is given of the mean monthly temperature of the water of the Thames, and a comparison is made between the results of observations made on board the 'Dreadnought' Hospital Ship, at the height of 32 feet above the water, with simultaneous observations at the Royal Observatory. From this comparison it is concluded, that at all seasons of the year the temperature at the 'Dreadnought' is above that at the Observatory during the night hours, and that it is below during the mid-day hours only: at times of extreme temperature the effects of the water upon the temperature of the air is very great.

The paper is accompanied by diagrams exhibiting to the eye, by means of coordinates, the numerical results given in the tables.

2. "On the Communications between the Tympanum and Palate in the Crocodilian Reptiles." By Richard Owen, Esq., F.R.S. &c.

After citing the descriptions by Cuvier, Kaup, Bronn, and De Blainville of the Eustachian tubes and the foramina in the base of the cranium of the recent and extinct Crocodiles, the author gives an account of the nerves, arteries, veins and air-tubes that traverse these different foramina, and thus determines the true position of the carotid foramina and posterior nostrils in the *Teleosauri* and other fossil *Crocodilia*, which had been a matter of controversy amongst the authors cited. In the course of these researches the author discovered a distinct system of Eustachian canals superadded to the ordinary lateral Eustachian tubes, which he describes as follows:—

"From each tympanic cavity two passages are continued downwards, one expands and unites with its fellow from the opposite side to form a median canal which passes from the basisphenoid to the suture between that and the basioccipital, where it terminates in the median canal continued to the orifice described by M. De Blainville as the posterior nostril. The second passage leads from the floor of the tympanic cavity to a short canal which bends towards its fellow, expands into a sinus and divides: one branch descends and terminates in the small lateral foramen at the lower end of the suture between the basioccipital and the basisphenoid: the other branch continues the course inwards and downwards until it meets its fellow at the median line of the basioccipital, and it forms the posterior primary division of the common median canal: this soon joins the anterior division, and the common canal terminates at the median opening below. Membranous tubes are continued from the three osseous ones, and converge to terminate finally in the single Eustachian orifice on the soft palate behind the posterior nostril. The mucous membrane of the palate lines the various osseous canals above described, and is continued by them into the lining membrane of the tympanum."

With regard to the homologies of the above described air-passages,

the author states that the lateral canals answer to the simple Eustachian tubes of Lizards and Mammals, and that the median canal, with its dichotomous divisions, is a speciality peculiar to the Crocodilian reptiles.

The memoir was illustrated by nine drawings of the size of nature.

March 7, 1850.

LIEUT.-COLONEL REID, R.E., Vice-President, in the Chair.

A paper was read, entitled "On the application of Carbon deposited in Gas Retorts as the negative plate in the Nitric Acid Voltaic Battery." By Christopher Leefe Dresser, Esq. Communicated by Thomas Bell, Esq., Sec. R.S. &c.

In the retorts used for the destructive distillation of coal to obtain the carburetted hydrogen gas for the purposes of illumination, after a certain time a deposition of carbonaceous matter takes place, and which at length accumulates to such an extent as to fill up a portion of the retort with solid substance, and to line the whole with a coating varying from the thickness of paper to several inches.

After describing several forms in which this substance occurs, and which vary considerably both in density and hardness, the author states that he found one of great hardness, very little, if at all, porous, and of a stony fracture, to be best adapted for the negative conductor of his nitric acid battery. The most convenient form for the negative conductor is the prismatic, $1\frac{1}{8}$ inch square on the side and about 7 inches long, which is immersed 4 inches in the acid, and used with round porous cells, the zinc cylinder being 3 inches in diameter and $4\frac{1}{2}$ inches high.

The carbon is cut into thin plates or prisms by the machine of the marble cutter, at a cost of about $1\frac{1}{4}d.$ each. The prisms may be easily obtained 12, 14, or 18 inches long.

The only precautions necessary in using this form of carbon, are, after using the plates to immerse them for a few moments in boiling water, to take off the adhering acid, and then to dry them before a fire or in a stove.

Having used the same plates and prisms for months, the author detected no deterioration of their conducting power, nor any decomposition or alteration. The connexion was made by soldering a strip of sheet copper to the zinc, and pressing this strongly against the carbon with a clamp.

Comparing these plates with plates of platinum, the author could detect little difference in action, but the carbon appeared rather superior. He states that his battery of 100 plates cost under £4, whilst one of platinum of equal power would have cost £60 or £70. From the cheapness and durability of this substance, he considers that it will make a valuable addition to our voltaic apparatus.